



NS-4I

four input non-sync switch/preview switcher.

user manual

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I System overview

This manual describes the function of the NS-41. This unit is an electronic SDI video switcher. The input video is simply switched and re-clocked to the output. One input can be replaced by an analogue reference source, which enables the system to be set up and cut on any line. A mechanical relay bypass is enabled if the power is removed and provides connection between input 1 and the output.

The NS-41 is a unit that will accept four SDI video inputs, (or three and a analogue reference source) and has one SDI output.

The main features are :-

- 4 inputs, 1 output SDI video switch.
- input 1 can be used as an analogue reference input for switching on a particular line.
- A mechanical relay bypass, from input 1 to the output.
- Control by FP-9 control panel. 4 LCD legendable pushbutton switches for control.
- GP-2 GPI card available for remote GPI control.

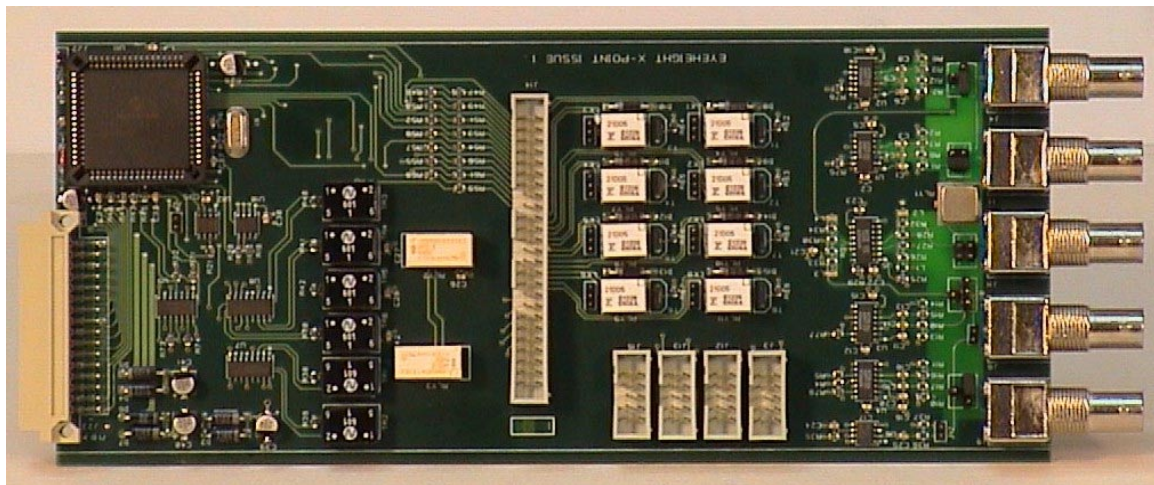


Figure 1-1 NS-41 module.

I.I Applications for the NS-41

Applications for the NS-41 include the following:-

- A preview switcher.
- Emergency bypass switching.

I.2 Associated Equipment for the NS-41

The NS-41 is a module and requires both a chassis and a control surface to function.

I.2.1 Chassis Types

- **flexiBox** is a 1RU chassis. The order code is FB-9. This will hold a maximum of 6 NS-41 Modules with “Hot Swap” redundant PSU option and “Hot Swap” NS-41 modules.
- **maxiBox** is an alternative low cost 1RU chassis. The order code is MX-9. This also will hold a maximum of 6 NS-41 modules but it has no redundant PSU option and the NS-41 units must be factory fitted.

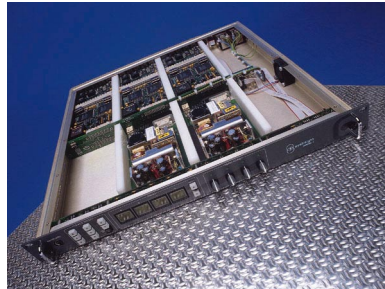


Figure 1-2 FlexiBox with flexiPanel fitted

I.2.2 Control Surfaces

- **flexiPanel** is a 1RU control surface that fits on the Front of a 1RU flexiBox. The order code is FP-9. A FlexiPanel can also be used in conjunction with a miniBox, in this case the extra accessory (Order code RR-9) will be required
- **FP-10** is a desk mounting control surface (Order code FP-10). This unit is a modular unit which can be used in conjunction with the units below.



Figure 1-3 FP-10 desktop modular panel



Figure 1-4 FP-9 1RU panel.

2 Installation

2.1 Installation of the NS-4I product

If this unit is already pre-installed in a flexiBox (FB-9), or a maxiBox, with either a local or a remote panel from the factory then refer to the "Hardware Installation Guide" which will be enclosed with the system. If this unit is pre-installed in a miniBox (MB-9), then also refer to the "Hardware Installation Guide" which will be enclosed with the system

If this unit has been ordered separately, we assume here that you already have a flexiBox system with a Flexipanel and that the flexiBox has at least two spare slots above each other for the NS-41 card.

2.2 Installing the NS-4I into a flexiBox

To install the NS-41 into a flexiBox it is desirable (but not necessary) to power down the flexiBox. Follow these instructions.

On the rear of the flexiBox are 6 slots for Products. Remove any pair of spare blanking plates one above another. There are 2 off M2.5 Screws, which require unfastening for each blanking plate.

Slide the Product PCB into the spare slots and firmly push it "home".

Use the two thumbscrews to fasten the unit in place. Take care that the ribbon cable for the upper circuit board stays attached to the lower board.

Now refer to the "GeNETics User Guide". If your system consists of a single flexiBox with a single flexiPanel then refer to the section titled "flexiPanel Auto Set-up". If your system is part of a network with more than one flexiPanel then refer to the section titled "flexiPanel Manual Set-up". This will guide you through acquiring your product as a device on the flexiPanel.

2.3 Connecting to an NS-4I.

Connections are simply four SDI inputs switched to one SDI output.

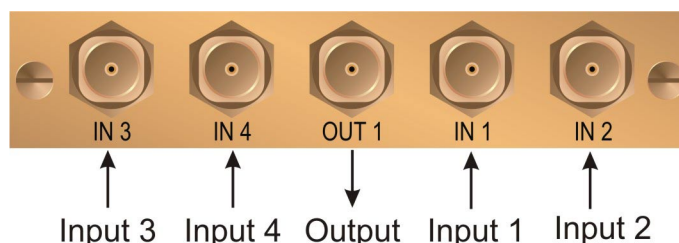
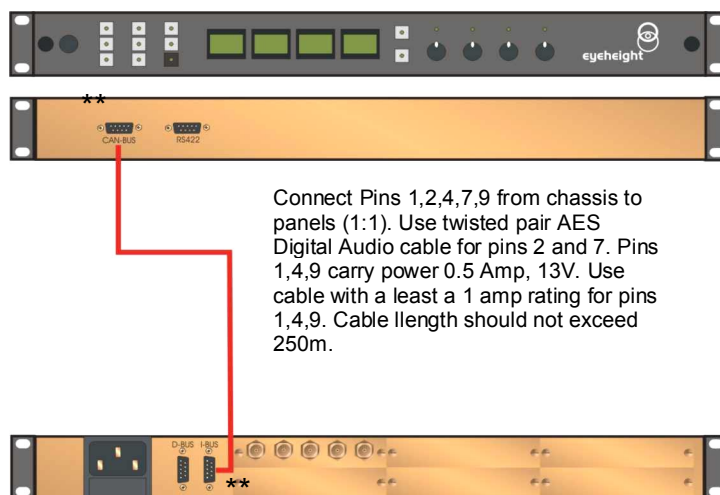


Figure 2-1 connections of an NS-41 module.

2.4 Connecting Panels to the NS-41

The NS-41 may be operated using a FP-9 or FP-10 Flexipanel locally, or remotely mounted. For detailed information on connecting remote panels refer to the section "Connection of Remote Panels to a flexiBox" in the geNETics Hardware Installation Guide.

Below is shown a typical system consisting of an NS-41 in a flexiBox controlled by an FP-9.



I-Bus pins 2 & 7

** The I-BUS Network requires terminating with 100 Ohms at each extreme end of the network. Ensure that this is done either by an external 100 ohm resistor OR ONE Panel/Product at each end has the termination set. See the "Genetics User Guide" Under the sections "Flexipanel Power/I-BUS Jumpers". For the 4RU Panels see "4RU Panel (FP-10) Jumpers for I-BUS" and "4RU Panel (VP-10, SW-10, AP-10) Jumpers for I-BUS". Alternatively The termination can be set on a Product (ie the AS-2 module). Information about this is given in this manual.

N.B. From 1/10/02, Eyeheight introduced a change in the flexiBox Chassis. Most versions now have two 9 way connectors on the rear labelled "I-Bus" and "D-Bus". The "I-Bus" connector is the same as the previously labelled "Can-B" connector. Although a maxiBox is shown in this diagram the same, arrangement applies for a flexiBox chassis.

3 Operation

3.1 Manual control of the NS-41

Manual Control of the NS-41 is done using one or more of the following control surfaces:

- The 1RU FP-9 flexiPanel.
- The FP10 desk mounting Panel

The FP-9 and the FP-10 have identical manual control systems. (The FP-10 is simply a desktop version of the FP-9). The NS-41 is, as are all genetics modules, controlled using a set of MENUS. Each of these menus contains up to 3 parameters that are adjusted using the rotary digipots. The Menus define all of the adjustable operational parameters in the NS-41. Pressing the rotary digipots brings the parameter to its default value. Device selection is done using the device select switches which, when pressed, will offer the name of the device in the LCD Window. Modules can be acquired and then de-acquired using the set-up switch. For a full description of the operation philosophy of the geNETics system refer to the “geNETics User Guide” (section “Operation of the flexiPanel”)

A full list of the Menus and their functions are given in section 3 of this chapter.

3.2 Automation Control of the NS-41

Automation of the geNETics products is achieved via an RS422 port.** This port is marked RS422 on the rear of a flexiBox. For the port to work a flexiPanel MUST be connected locally on the front of the flexiBox.

Automation control of the NS-41 can be done using two protocol methods:

- geNETics Automation Protocol.
- PresTX Automation Protocol.

Genetics protocol is described in detail in the “GeNETics User Guide” section titled “Automation Protocol on the geNETics Platform”. The menu list in section 3 of this chapter contains the data information for the protocol.

PresTX Automation Protocol is used only for the PresTX Presentation Mixer and channel branding system. In this case an AU-2 Automation card is also required. Refer to the PresTX Product manual

**On most flexiBoxes later than 1/10/02 the RS422 port has been replaced by a “D-Bus” Port. The D-Bus port is for High Speed data transfer and is not used for serial control. In order to achieve serial control of any products on an I-Bus network Eyeheight Ltd have developed a RS232→I-bus converter “dongle”, (DG-9) which enables greater flexibility of products on the I-Bus network whilst using the same protocols as the RS422 port. Please refer to the “User guide for the DG-9 eyeheight dongle and set-up software.

3.3 Assigning names to the four NS-41 inputs.

Names may be assigned to the four NS-41 inputs. These names appear on the menu 00→03 LCD displays.

The four named sources to the NS-41 can be renamed.

The procedure is as follows:

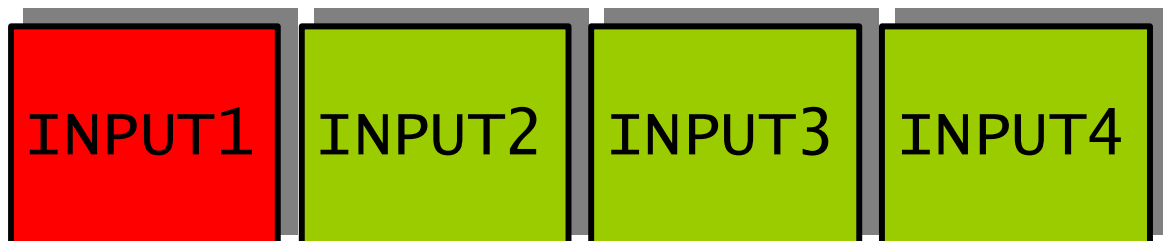
- Plug in a PS-2 Keyboard into the flexiPanel that has control of the NS-41.
- Ensure that the correct NS-41 is selected on the device buttons.
- Press F9 on the PS-2 Keyboard and the word TEXT should appear in the 4 LCD Displays.
- Type the following (Example): "1MainTX"
- Hit the RETURN key.

This will cause the "Input 1" of the switch to be renamed "MainTX". To do the "Input 2" side of the switch use the Prefix "2" (e.g. "2Bypass") and so on.

3.4 Operational Menus for the NS-41.

The following set of menus defines the operation of the NS-41.

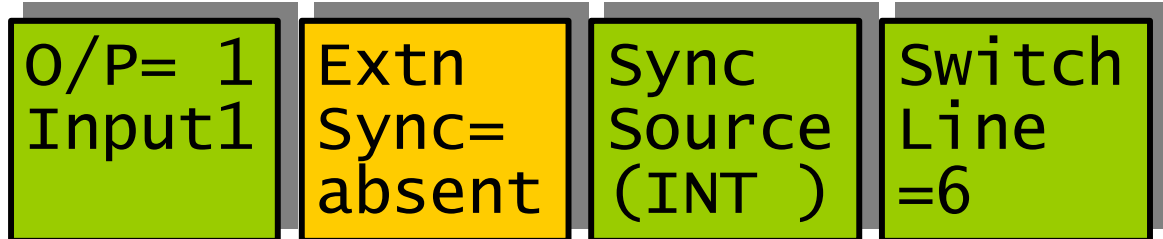
Menu 00-03: Top level controls



Menu Num.	Heading	Automation	Function
0	INPUT 1 (user defined)	1=switch output to this input.	Pressing this button switches the output to this input. The switch lights up red to indicate when selected.
1	INPUT 2 (user defined)	1=switch output to this input.	Pressing this button switches the output to this input. The switch lights up red to indicate when selected.
2	INPUT 3 (user defined)	1=switch output to this input.	Pressing this button switches the output to this input. The switch lights up red to indicate when selected.
3	INPUT 4	1=switch	Pressing this button switches the output to this input. The switch

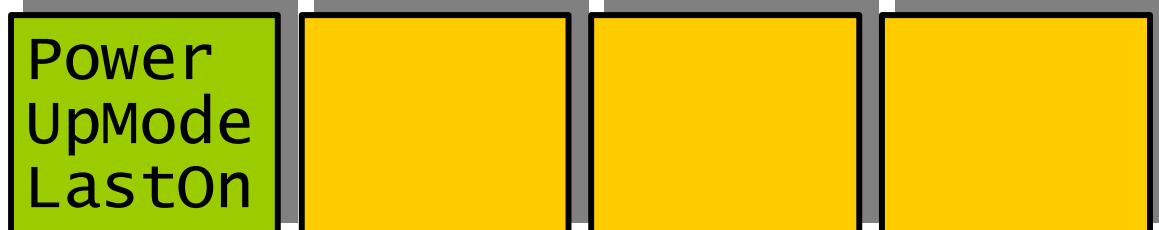
	(user defined)	output to this input.	output to this input. The switch lights up red to indicate when selected.
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Menu 04-07: Set up Controls



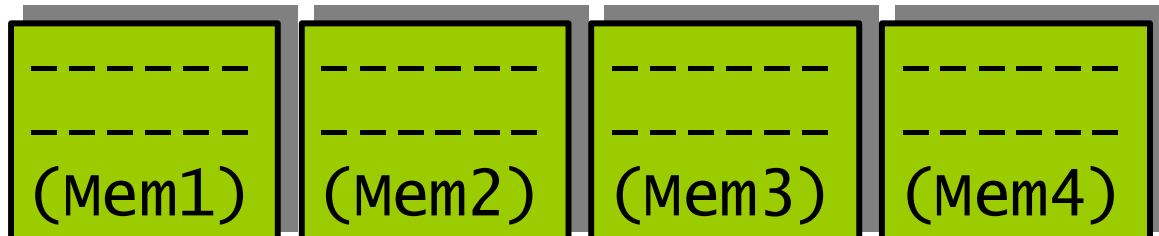
Menu Num.	Heading	Automation	Function
4	O/P= 1 INPUT 1 (user defined)	1 to 4 (default is 1)	This button will select which input is routed to the output. Pressing return will bring up a cursor enabling the user to type their required label for the currently selected input. Pressing return again will store the new label and return to normal operation.
5	Extn Sync= absent	Info only	This menu indicates the presence or absence of external syncs.
6	Sync source (INT)	0=Auto, 1=INT 2=EXT (default is 1=INT)	This menu option selects the sync source used to synchronise the line switching of the inputs. The options are using the Internal reference, an External input or automatically trying to lock to an internal source when present.
7	Switch Line =6	1 to 288 (default is 6)	This option selects on which video line the inputs are switched between inputs.

Menu 08-11: Power on option



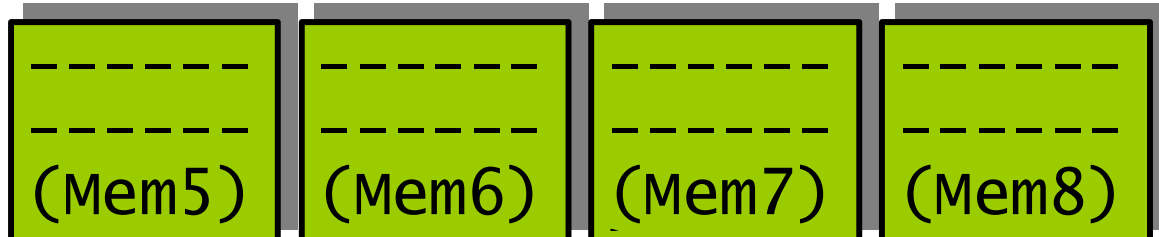
Menu Num.	Heading	Automation	Function
8	Power UpMode LastOn	0=PowMem 1=LastOn (default is LastOn)	This option selects whether the unit stores the Last Input selected or uses the Power On Memory .
9	UNUSED		
10	UNUSED		
11	UNUSED		

Menu 12-15: Memory Controls



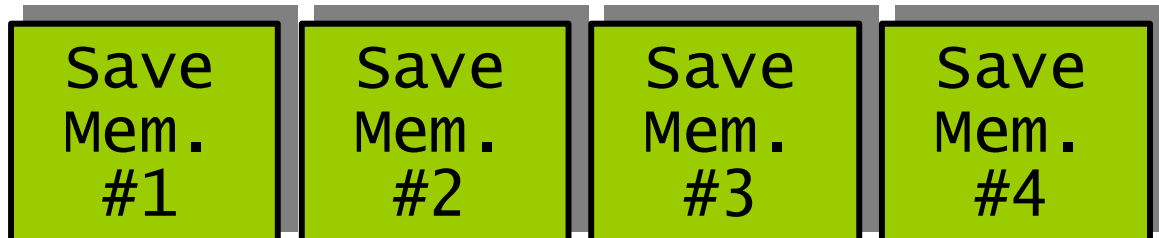
Menu Num.	Heading	Automation	Function
12	MEM1	1=Recall	Pressing this will recall Memory number 1.
13	MEM2	1=Recall	Pressing this will recall Memory number 2.
14	MEM3	1=Recall	Pressing this will recall Memory number 3.
15	MEM4	1=Recall	Pressing this will recall Memory number 4.

Menu 16-19: Memory Controls continued



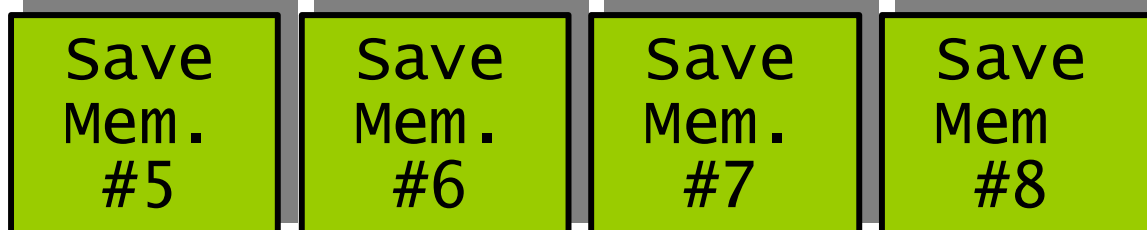
Menu Num.	Heading	Automation	Function
16	MEM5	1=Recall	Pressing this will recall Memory number 5.
17	MEM6	1=Recall	Pressing this will recall Memory number 6.
18	MEM7	1=Recall	Pressing this will recall Memory number 7.
19	MEM8	1=Recall	Pressing this will recall Memory number 8.

Menu 20-23: Memory Controls continued



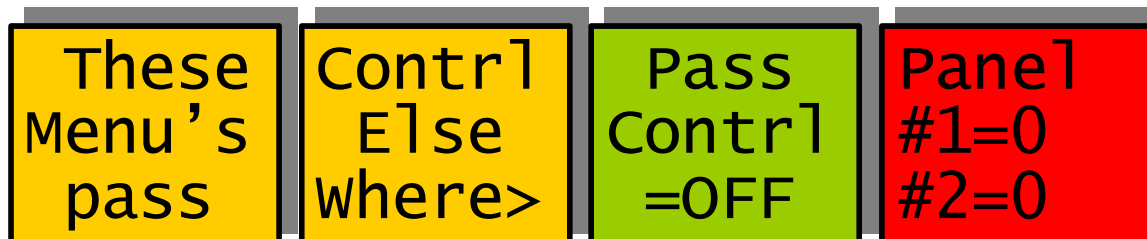
Menu Num.	Heading	Automation	Function
12	Save Mem. 1	1= Save	Pressing this will Save Memory number 1.
13	Save Mem. 2	1= Save	Pressing this will Save Memory number 2.
14	Save Mem. 3	1= Save	Pressing this will Save Memory number 3.
15	Save Mem. 4	1= Save	Pressing this will Save Memory number 4.

Menu 16-19: Memory Controls continued



Menu Num.	Heading	Automation	Function
16	Save Mem. 5	1= Save	Pressing this will Save Memory number 5.
17	Save Mem. 6	1= Save	Pressing this will Save Memory number 6.
18	Save Mem. 7	1= Save	Pressing this will Save Memory number 7.
19	Save Mem. 8	1= Save	Pressing this will Save Memory number 8.

Menu 20-23: Control Menus



Menu Num.	Heading	Automation	Function
20	Info	none	Information
21	Info	none	Information
22	Pass Contrl	1= on	Pass control
23	Info	none	Information

Menu 24-27: Reset options



Menu Num.	Heading	Automation	Function
24	Set As Pow On Memory	1=save	Pressing this will save the current set up as the power on default.
25	Recall Pow On Memory	1=Recall	Pressing this will recall the power on default settings.
26	TOTAL RESET	1=Reset	Pressing this will reset the system.
27	NS-41 040302 Ver1.6	N/A	Information about the current issue of software.

4 Technical Appendix

4.1 Technical Specification for the NS-4ID

Number of Inputs	4 Input BNCs
Type of Inputs	270Mbit Serial Digital Video Inputs 75Ohm. One BNC can be configured to be a video input to enable synchronised switching.
Line Length	At least 75 Meters of PSF1/3
Number of Outputs	1 Output BNC
Type Of Outputs	270Mbit Serial Digital Video Outputs, 75 Ohm, 800mV
Total Number Of BNC Connections	5, consisting of 4 Inputs, and 1 outputs.
SDI Output Jitter	The system will add less than 0.2UI to the input Jitter. (This is only guaranteed on issue 2 or later cards)
Current Consumption	<800mA at +5V
Size	215mm by 100mm